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09/889,186	10/10/2001	Daniel Francis Parvin	UDL1P065	8435

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BEYER WEAVER & THOMAS LLP
P.O. BOX 778
BERKELEY, CA 94704-0778

EXAMINER

GABOR, OTILIA

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/889,186	PARVIN ET AL.
	Examiner Otilia Gabor	Art Unit 2878

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 10 October 2001.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-21 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 10 October 2001 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____

4) Interview Summary (PTO-413) Paper No(s) _____

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____

DETAILED ACTION

Claim Objections

1. Claims 1-12, 18, 21 are objected to because of the following informalities:
Claims 1, 5, 11, 18 contain the symbol “:-”, which should only be --:--; claims 1 and 12 contain the idiomatic language “calculating the calculated relationship”; claims 12 and 21 should contain the word “detecting” after the phrase “one or more detectors for” and before the phrase “emissions” in lines 3 and 14 of claim 12 and lines 3 and 12 of claim 21. Appropriate correction is required.

The balance of claims 2-4, 6-10 is objected to for being dependent from an objected claim.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 1-12, 14, 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 1 recites the limitation "the calculated relationship" in line 16-17, 18-19, 21 and 22-23. There is insufficient antecedent basis for this limitation in the claim.
5. Claim 1 recites the limitation "the determined relationship" in line 18. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 12 recites the limitation "the calculated relationship" in lines 24-25, 29-30, 31. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 12 recites the limitation "the determined relationship" in line 26. There is insufficient antecedent basis for this limitation in the claim.

Claims 1 and 12 provide only for calculating and determining VALUES for a relationship and NOT for calculating and determining relationships.

8. Claim 8 recites the limitation "the adjusting of the variables/functions/factors" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 from which claim 1 is dependent provides only for adjusting variables/functions and NOT factors.

9. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: positioning the sample into and out of a measurement position (place). The claim refers to these two positions, however there is no step providing for such a limitation because there is no explanation of a measurement place and a non-measurement place in any of the previous claims.

10. Regarding claim 14, the phrase "may be" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

There is ambiguity as to whether the 50% is a necessary limitation in the claim.

11. Claim 19 recites the limitation "the measurement based correction factor" in line 3. There is insufficient antecedent basis for this limitation in the claim.

There is no provision for a measurement based correction factor in any of claims 17 or 13 from which claim 19 is dependent.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1-4, 8-10, 12, 13, 17, 19-21 rejected under 35 U.S.C. 102(b) as being clearly anticipated by Cann et al. (U. S. Patent 5155365).

Cann et al. discloses an apparatus and method for investigating a sample containing radioactive sources, the apparatus comprising:

- one or more detectors (66) for detecting the emissions from the radioactive sources in the sample 64 and for generating signals indicative of the emissions detected
- a position where the sample is positioned before the start of the measurement (see Fig.1A)

- a radioactive emission generator 60 (12), separate from the sample 64, for generating a dual energy emission radiation which passes through the sample 64 and is detected by the
- one or more detectors 64, 65 which generate a signal indicative of the transmissions detected
- a processing means 20, 26, 28 which capture, process, calibrate and calculate the corrected signals from the original signals generated in the detectors.

The calculation of the final corrected values is as follows: The dual energy transmission data and the emission data for a particular element in the sample is detected using the multiple detectors 64, 65, 66. The raw data is preprocessed to eliminate for scatter, normalization, crosstalk and pile-up. The pre-processed transmission data is converted to a new basis set of projections (43) using calibration data 44 obtained for the system. This data set consists of equivalent path lengths (45) of the sample. These path lengths obtained from the dual energy transmission data is converted to attenuation coefficient values at the energy of the emitted photons from the particular radionuclide under investigation using previously recorded values 47 for the energy dependence of the photon attenuation coefficients of the sample. The emission data is then corrected (48) for attenuation using a linear combination of the sample attenuation data, which then gives the corrected radionuclide emission detected value. The algorithm used for the correction is shown in Cols.5-6 and Fig.2. If more than one radionuclide energy is used

(more than one radionuclide element is present in the sample) the process is repeated for each of the energies.

14. Claims 13, 21 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Hawkins et al. (U. S. Patent 6310968).

Hawkins et al. discloses an apparatus and method for correcting the emissions detected from a sample containing radionuclide sources. The method comprising detecting the emissions from the sample positioned in the subject receiving aperture 18 using one or more detectors 20. Next to the sources in the sample a separate radionuclide emission source (as many as there are detectors) 30 is used and the emissions from this generator is detected using one or more of the detectors 20 by passing the radiation through the sample. The detected emission data from the generator 30 is compared to the emissions from the generator when the sample is not present and the difference is used to calibrate the signals. The emissions data from the generator is used to correct the emission data from the sample using the algorithm as disclosed in Cols.10-12 where one of the correction factors is the transmission coefficient T of the sample.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

17. Claims 5-7, 11, 14-16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cann et al.

Regarding claims 5, 11 and 18 Cann et al. fails to specifically disclose the formulas for the calculation of the transmission coefficient, however since the transmission coefficient is inherently related to the thickness of the material and the absorption coefficient, as well as the rate of photons detected with and without the sample, it would have been obvious to one of ordinary skill in the art to apply the claimed formulas since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 6 and 7 Cann et al. fails to disclose the specific elements present in the sample, however since he does not limit his process to only one specific element (he uses Xe-133 merely as an example) and since he mentions using other (two or more) elements (see Col.5, lines 35-37), it would have been obvious to one of

ordinary skill in the art to use the claimed elements since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin* 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

Regarding claims 14-16 Cann et al. fails to specify the ranges of the energies of the generator (as relating to the range of the sample (claims 14, 15) and as relating to the number of energies emitted (claim 16), however since he does not limit the range (he uses one and two energies as a particular embodiment), it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the claimed range since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955).

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Caldwell et al. (US2002/0125439), Taleyarkhan (US2002/0175288), Lane et al. (U. S. Patent 5274239).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Otilia Gabor whose telephone number is 703-305-0384. The examiner can normally be reached on Monday-Friday between 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 703-308-4852. The fax phone numbers for

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the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


CONSTANTINE HANNAHER
PRIMARY EXAMINER
GROUP ART UNIT 2878

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May 15, 2003